

ABSTRACT OF THE DISCLOSURE

A process and apparatus is disclosed for heating or cooling polymer solids in a dispensing section of a solid-state polycondensation reactor. Gas is delivered to the dispensing section of the reactor in which it cools polymer solids in the dispensing section by direct heat exchange. Part of the gas is withdrawn at a point proximate to the dispensing section of the reactor and is cooled. The rest of the gas ascends through a reactive section of the reactor and purges polymer solids of impurities. The gas withdrawn from the reactive section of the reactor is oxidized of impurities and dried and then combined with the gas withdrawn proximate to the dispensing section of the reactor. To achieve uniform heating or cooling of the polymer solids in the dispensing section, a preferred ratio of mass flow rate of gas to the mass flow rate of solids is recommended.